AMENDMENTS TO THE SPECIFICATION

Paragraph beginning at page 1, line 1 (before the Title):

~~DESCRIPTION~~

Please insert the following paragraph on page 1 after the title:

CROSS REFERENCE TO RELATED APPLICATIONS

The present application is a national stage of PCT/JP2005/007497, filed April 20, 2005, which claims priority to Japanese application No. 2004-194478, filed June 30, 2004.

Paragraph beginning at page 1, line 5:

~~Technical~~ Field of the Invention

Paragraph beginning at page 1, line 11:

Background ~~Art~~ of the Invention

Paragraph beginning at page 1, line 12:

Various transmission lines, such as a grounded coplanar line in which a ground electrode is disposed substantially all over one surface of a dielectric plate and a coplanar line is disposed on the other surface of the dielectric plate, a grounded slot line in which a ground electrode is disposed on one surface of a dielectric plate and a slot is arranged in the other surface of the dielectric plate, and a planar dielectric transmission line (PDTL) in which slots facing each other across a dielectric plate are arranged in both surfaces of the dielectric plate, are used as transmission lines for a microwave band or a millimeter-wave band.

Paragraph beginning at page 2, line 14:

In order to prevent such propagation of an undesired wave, a technology for alternately connecting inductor portions and capacitor portions and arranging the inductor portions and the capacitor portions on a two-dimensional plane is disclosed in

"Nonleaky Conductor-Backed CPW Using A Novel 2-D PBG Lattice", 1998 APMC (non-patent document 1). In addition, a technology in which, as shown in ~~part (A) of~~ Fig. 13A, a plurality of through holes 11 for allowing conduction between parallel planar conductors is arranged in a dielectric substrate forming a waveguide including the two parallel planar conductors and a technology in which, as shown in ~~part (B) of~~ Fig. 13B, for example, an undesired-wave propagation blocking circuit 12 is disposed at a planar conductor on a front surface side of a dielectric substrate using conductor patterns comprising electrodes for generating capacitances between the electrodes and a planar conductor on a rear surface side and a plurality of lines that is connected to the electrodes and that forms inductors are disclosed in Japanese Unexamined Patent Application Publication No. 2000-101301 (patent document 1). In Figs. 13A and B, the mark "×" represents a signal propagation direction of a slot line, and wavy lines represent states of propagation of undesired waves.

Paragraph beginning at page 3, line 10:

In addition, as the above-mentioned undesired-wave propagation blocking circuit, as shown in Figs. 14A and B, a technology for arranging spiral parallel line resonators is disclosed in Japanese Unexamined Patent Application Publication No. 2003-258504 (patent document 2).

Paragraph beginning at page 3, line 14:

~~Part (B) of~~ Fig. 14B is a partial plan view of a high-frequency circuit device including an undesired-wave propagation blocking circuit, and ~~part (A) of~~ Fig. 14A is a partial plan view of the undesired-wave propagation blocking circuit. Planar conductors 2 are provided on the upper and lower surfaces of a dielectric substrate 1. Undesired-wave propagation blocking circuits 4 are disposed at the planar conductors 2. As shown in ~~part (A)~~ Fig. 14A, each of the undesired-wave propagation blocking circuits 4 includes two parallel transmission lines, transmission lines 7A and 7B, and

resonators 8 are connected to the transmission line 7A. Each of the resonators 8 has two spiral lines, spiral lines 8A and 8B, that extend in parallel to each other from a root portion of the resonator 8, and leading ends of the spiral lines 8A and 8B are connected to each other at a point represented by 8C. The arrows E in the figures represent electric field vectors generated between two transmission lines.

Paragraph beginning at page 4, line 7:

The undesired-wave propagation blocking circuit 4 is formed by arranging a plurality of such pairs of transmission lines and resonators, as shown in ~~part (B)~~ Fig. 14B.

Paragraphs beginning at page 4, line 10:

~~[Patent Document 1] Japanese Unexamined Patent Application Publication No. 2000-101301~~

~~[Patent Document 2] Japanese Unexamined Patent Application Publication No. 2003-258504~~

~~[Non-Patent Document 1] "Nonleaky Conductor-Backed CPW Using A Novel 2-D PBG Lattice", 1998APMC~~

~~Disclosure of Invention~~

~~Problems to be Solved by the Invention~~

Please insert the following paragraph on page 5, line 2:

Summary of the Invention

Paragraph beginning at page 5, line 8:

~~Means for Solving the Problems~~

Paragraph beginning at page 5, line 9:

~~(1)~~ A high-frequency circuit device according to the present invention includes at least two parallel planar conductors and an undesired-wave propagation blocking circuit that is coupled with an undesired wave propagating between the two planar conductors to block the propagation of the undesired wave. The undesired-wave propagation blocking circuit forms a band eliminate filter including a plurality of stages of resonators and transmission lines each connecting the resonators in the respective stages. The transmission lines are two transmission lines that are in parallel to each other. Each resonator in the respective stages has two spiral lines extending in parallel to each other from each root portion of the two spiral lines of the resonator. Leading ends of the two spiral lines are connected to each other. Each root portion of the two spiral lines of the resonators is connected to a plurality of positions of at least one of the two transmission lines. each resonator is short-circuited at the root portions of the two spiral lines.

Paragraph beginning at page 6, line 3:

~~(2)~~ In addition, the high-frequency circuit device according to the present invention is configured such that the plurality of resonators is connected to the corresponding transmission lines ideally at an interval of (2n+1)/4 (n is an integer of 0 or more) of the wavelength of the transmission lines.

Paragraph beginning at page 6, line 9:

~~(3)~~ In addition, a transmitting and receiving apparatus according to the present invention is configured such that the high-frequency circuit device ~~described in (1) or (2)~~ is provided in a signal propagation section or a signal processing section.

Paragraph beginning at page 6, line 14:

~~Advantages~~

Paragraph beginning at page 6, line 25:

~~(2)~~ In addition, according to the present invention, since resonators are connected to the transmission lines at an interval of ideally (2n+1)/4 (n is an integer of 0 or more) of the wavelength of the transmission lines, an operation as a band eliminate filter that attenuates in a predetermined band in which a resonant frequency of each resonator serves as an intermediate frequency can be effectively achieved. Thus, propagation of an undesired wave in a predetermined frequency band can be effectively suppressed.

Paragraph beginning at page 7, line 10:

~~(3)~~ In addition, according to the present invention, since a transmitting and receiving apparatus includes the high-frequency circuit device described ~~in (1) or (2)~~ above, an undesired-wave propagation blocking circuit can be provided on a dielectric substrate of the transmitting and receiving apparatus, thus enabling ~~to block~~ the blocking of an undesired wave propagating on the dielectric substrate. Thus, high efficiency can be achieved by reducing power loss due to an undesired wave, and noise due to an undesired wave can be reduced. In addition, since interference between lines or between a line and an element can be reliably prevented even if the space between the lines or the space between the element and the line is reduced in a case where the plurality of lines is disposed on the dielectric substrate or in a case where the line is disposed together with the element, such as a resonator, a transmitting and receiving apparatus whose entire size is reduced can be achieved.

Paragraphs in the "Brief Description of the Drawings" section beginning at page 8, line 2:

~~[Fig. 1]~~ Fig. 1 is a plan view showing the structure of a main portion of an undesired-wave propagation blocking circuit according to a first embodiment.

~~[Fig. 2]~~ Fig. 2 shows a unit lattice pattern of the undesired-wave propagation blocking circuit.

~~[Fig. 3]~~ Fig. 3 includes equivalent circuit diagrams of the undesired-wave propagation blocking circuit.

~~[Fig. 4]~~ Fig. 4 is a perspective view showing the structure of a main portion of a high-frequency circuit device.

~~[Fig. 5]~~ Fig. 5 is a cross-sectional view of the high-frequency circuit device.

~~[Fig. 6]~~ Figs. 6A and B are ~~includes~~ characteristic diagrams of the high-frequency circuit device.

~~[Fig. 7]~~ Fig. 7 shows size comparison between the unit lattice pattern of the undesired-wave propagation blocking circuit according to the invention of this application and known unit lattice patterns.

~~[Fig. 8]~~ Fig. 8A and B are ~~includes~~ plan views showing the structure of a resonator of an undesired-wave propagation blocking circuit according to a second embodiment.

~~[Fig. 9]~~ Fig. 9 is a plan view showing the structure of a main portion of an undesired-wave propagation blocking circuit according to a third embodiment.

~~[Fig. 10]~~ Fig. 10 is a plan view showing the structure of a main portion of an undesired-wave propagation blocking circuit according to a fourth embodiment.

~~[Fig. 11]~~ Fig. 11 is an exploded perspective view of a transmitting and receiving apparatus according to a fifth embodiment.

~~[Fig. 12]~~ Fig. 12 is a block diagram showing the entire structure of the transmitting and receiving apparatus.

~~[Fig. 13]~~ Fig. 13A and B are ~~includes~~ cross-sectional views showing the structure of a known undesired-wave propagation blocking circuit.

~~[Fig. 14]~~ Fig. 14A and B are ~~includes~~ plan views of a main portion of the known undesired-wave propagation blocking circuit.

Paragraph beginning at page 10, line 3:

Detailed Description of ~~Best Mode for Carrying Out~~ the Invention

Paragraph beginning at page 15, line 20:

Figs. 6A and B show ~~shows~~ measurement results of a transmission characteristic (S21 characteristic) between the ports #1 and #2 of the CBCPW shown in Fig. 4. Fig. 6A ~~Part (A) of the figure~~ shows an effective bandwidth in which propagation of an undesired wave is blocked, representing a frequency on the horizontal axis and representing an attenuation on the vertical axis. In Fig. 6A ~~the figure~~, (1) represents a characteristic in a case where no undesired wave is generated, and (2) represents a characteristic in a case where an undesired wave is generated and no undesired-wave propagation blocking circuit is provided. In addition, (3) represents a characteristic in a case where an undesired wave is generated and the undesired-wave propagation blocking circuit 4 described in the first embodiment is provided, and (4) represents a characteristic in a case where the short-circuit portions 8S and 9S are not provided (short circuit is not performed) as the undesired-wave propagation blocking circuit.

Paragraph beginning at page 17, line 8:

~~Part (B) of~~ Fig. 6B shows comparison between a case where undesired-wave propagation blocking circuits are disposed on both surfaces of a dielectric substrate and a case where an undesired-wave propagation blocking circuit is disposed on only one surface of the dielectric substrate. In Fig. 6B ~~the figure~~, (1) represents a characteristic in

a case where no undesired wave is generated, (2) represents a characteristic in a case where an undesired wave is generated and no undesired-wave propagation blocking circuit is provided. In addition, (3) represents a characteristic in a case where an undesired-wave propagation blocking circuit is provided on only one surface, and (4) represents a characteristic in a case where undesired-wave propagation blocking circuits are provided on both surfaces of the dielectric substrate.

Paragraph beginning at page 19, line 7:

The configuration of an undesired-wave propagation blocking circuit according to a second embodiment will be described with reference to Figs. 8A and 8B.

Paragraph beginning at page 19, line 10:

In the example shown in Fig. 1, the line widths of the spiral lines 8A, 8B, 8C, 9A, 9B, and 9C, and the line spaces between the spiral lines 8A and 8B, and between the spiral lines 9A and 9B are constant over the area from the outer periphery of the spiral to the inner periphery of the spiral. However, as shown in ~~part (A) of~~ Fig. 8A, the line widths of the spiral lines 8A and 8B at a central portion of the spiral may be larger than the line widths of the spiral lines 8A and 8B at the outer periphery of the spiral. The structure of a transmission line portion other than the resonator is similar to that in the first embodiment.

Paragraph beginning at page 19, line 25:

In addition, as shown in ~~part (B) of~~ Fig. 8B, the space between the two spiral lines~~, the spiral lines~~ 8A and 8B[[,]] at the central portion of the spiral may be larger than the space between the spiral lines 8A and 8B at the outer periphery of the spiral. In this case, at the central portion of the spiral, the magnetic flux density of a magnetic flux passing through between the lines is reduced, and loss due to power propagating between the lines is reduced. Thus, the nonloaded Q (Qo) of the resonator 8 can be improved.

Paragraph beginning at page 20, line 13:

Fig. 9 is a plan view showing a main portion of the undesired-wave propagation blocking circuit. Similarly to the undesired-wave propagation blocking circuit shown in Fig. 2, the two types of resonators~~, the resonators~~ 8 and 9[[,]] are disposed in a plurality of midway positions of the two transmission lines~~, the transmission lines~~ 7A and 7B. The two types of resonators~~, the resonators~~ 8 and 9[[,]] are rectangular and are mirror-symmetrical to each other. In addition, the resonators 8 and 9 are disposed in a relationship rotated ninety degrees on the plane. In addition, connections between the resonators of the two transmission lines~~, the transmission lines~~ 7A and 7B[[,]] operate as 90-degree phase shifters, and the connections between the resonators are patterned into a meander line shape. The transmission lines 7A and 7B and the two resonators~~, the resonators~~ 8 and 9[[,]] form a unit lattice pattern LU. The unit lattice patterns LU are spread over the dielectric substrate by repeating a plurality of unit lattice patterns LU.